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| 10/010,506      | 11/13/2001  | Brian T. Rosenberger | 8571:88             | 6463             |

7590 05/23/2003  
William N. Hulsey III  
Hughes & Luce, L.L.P.  
Suite 2800  
1717 Main Street  
Dallas, TX 75201

EXAMINER

AMARI, ALESSANDRO V

ART UNIT PAPER NUMBER

2872

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/010,506

Applicant(s)

ROSENBERGER ET AL.

Examiner

Alessandro V. Amari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Amako et al U.S. Patent 5,497,254.

In regard to claims 1 and 9, Amako et al teaches (see Figures 24-26) an apparatus or method for forming a three-dimensional solid structures from a medium, the apparatus comprising a projector (2404) for projecting an electromagnetic energy in the form of at least one hologram into the medium, the electromagnetic energy in the form of the at least one hologram imparting energy to the medium, the medium changing through at least one phase to form a solid three dimensional structure as described in column 16, lines 9-67 and column 17, lines 30-47.

Regarding claim 2, Amako et al teaches that the projector comprises a spatial light modulator as described in column 1, lines 37-40 and column 16, lines 13-16.

Regarding claim 4, Amako et al teaches that the projector projects a plurality of holograms as shown in Figure 26.

Regarding claim 5, Amako et al teaches that the holograms are projected through a series of mediums (2406, 2407) as described in column 16, lines 9-67 and column 17, lines 30-47.

Regarding claim 6, Amako et al teaches (see Figure 26) that the apparatus further comprises a second projector (2404), the second projector projecting a second electromagnetic energy into the medium.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amako et al in view of Marcus U.S. Patent 5,017,317.

Regarding claim 3, Amako et al teaches the invention as set forth above but does not teach that the medium is a gaseous organometallic compound.

Marcus does teach that the medium is a gaseous organometallic compound as described in column 3, lines 13-16.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the gaseous organometallic compound as taught by Marcus in the apparatus and method of Amako et al in order to produce more complex or unusual components.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amako et al U.S. Patent 5,497,254 in view of Rode et al U.S. Patent 6,312,768.

In regard to claim 7, Amako et al teaches (see Figures 24-26) an apparatus for forming a three-dimensional solid structure from a medium, the apparatus comprising: a

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projector (2404) for projecting an electromagnetic energy in the form of the hologram; the electromagnetic energy in the form of the hologram imparting energy to the medium, the medium changing through at least one phase to form a solid three-dimensional structure as described in column 16, lines 9-67 and column 17, lines 30-47.

However, Amako et al does not teach a vessel containing the medium, the vessel having a window, the window being transparent to the electromagnetic energy in the form of the hologram, the electromagnetic energy in the form of the hologram passing through the window and into the medium.

Rode et al does teach (see Figure 1) a vessel (7) containing the medium, the vessel having a window (6), the window being transparent to the electromagnetic energy in the form of the hologram, the electromagnetic energy in the form of the hologram passing through the window and into the medium.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the vessel of Rode et al in the apparatus and method of Amako et al in order to exert more control on the environmental parameters (pressure, flow rates, etc.) for better formation of the solid three-dimensional structures.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amako et al U.S. Patent 5,497,254 in view of Marcus U.S. Patent 5,017,317 and further in view of Rode et al U.S. Patent 6,312,768.

In regard to claim 8, Amako et al teaches (see Figures 24-26) an apparatus for forming a three-dimensional solid structure from a medium, the apparatus comprising: a laser light source (2401) for generating a coherent electromagnetic energy; a collimating

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means (2403), the coherent electromagnetic energy passing through the collimating means to form a collimated electromagnetic energy; a spatial light modulator (2404), the collimated electromagnetic energy passing through the spatial light modulator to form at least one hologram of electromagnetic energy, the at least one hologram of electromagnetic energy passing into the medium in order to form a solid three dimensional structure as described in column 16, lines 9-67 and column 17, lines 30-47.

However, Amako et al does not teach passing the energy through a gaseous medium causing the gaseous medium to dissociate and deposit a solid three-dimensional structure.

Marcus does teach that the medium is gaseous as described in column 3, lines 9-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the gaseous medium as taught by Marcus in the apparatus and method of Amako et al in order to produce more complex or unusual components.

Furthermore, neither Amako et al or Marcus teach a vessel operable to hold a gaseous medium; a window contiguous with a wall of the vessel, the window transparent to the electromagnetic energy in the form of the at least one hologram; an inlet line connected to the vessel, the inlet line operable to selectively flow the gaseous medium into the vessel; an outlet line connected to the vessel, the outlet line operable to selectively flow the gaseous medium from the vessel; and a platform situated in the vessel.

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Rode et al does teach (see Figure 1) a vessel (7) operable to hold a gaseous medium; a window (6) contiguous with a wall of the vessel, the window transparent to the electromagnetic energy in the form of the at least one hologram; an inlet line connected to the vessel, the inlet line (14) operable to selectively flow the gaseous medium into the vessel; an outlet line (13) connected to the vessel, the outlet line operable to selectively flow the gaseous medium from the vessel; and a platform (8) situated in the vessel.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the vessel of Rode et al in the apparatus and method of Amako et al in view of Marcus in order to exert more control on the environmental parameters (pressure, flow rates, etc.) for better formation of the solid three-dimensional structures.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (703) 306-0533. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ava *AV*  
May 19, 2003

  
**MARK A. ROBINSON**  
**PRIMARY EXAMINER**